

# Prospective Computer Teachers' Mental Images about the Concepts of "School" and "Computer Teacher"\*

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## Abstract

In this phenomenological study, prospective computer teachers' mental images related to the concepts of "school" and "computer teacher" were examined through metaphors. Participants were all the 45 seniors majoring in the Department of Computer and Instructional Technologies at Selcuk University, Ahmet Kelesoglu Faculty of Education during the 2009-2010 academic year. They were asked to produce one metaphor for their either experienced or ideal "school" image and one metaphor for their either experienced or ideal "computer teacher" image. Collected data were analyzed by using the "content analysis" technique. According to the findings, participants produced 33 valid metaphors about the "school". While 16 of these metaphors reflected their past schooling experiences, 17 of them reflected their ideal schools. Based on their common characteristics, all the 33 metaphors were grouped into 9 categories (*a disciplinary center, a shaping place, a work center, an outdated place, a place of enlightenment, a place of hope, a place of growth, a place of solidarity and a fun place*). In the same way, participants produced a total of 21 valid metaphors about the "computer teacher". While 10 of these metaphors reflected their past computer teachers, 11 of them represented their ideal computer teachers. Based on their common characteristics, all the 21 metaphors were grouped into 6 categories (*superior authority figure, shaper, information provider, curer, guide and democratic leader*). It appears that while participants produced only *teaching-focused* metaphors to reflect their school experiences and computer teachers, they developed both *teaching- and learning-focused* metaphors to reflect their ideal schools and computer teachers.

## Key Words

Computer Teacher Candidates, Metaphors about School, Metaphors about Computer Teacher, Qualitative Research.

Metaphor provides a powerful mental model in understanding and explaining high-level abstract or complex phenomena (Saban, Koçbeker, & Saban, 2006). In this regard, metaphor acts as a means of thinking and visualization and it symbolizes one's perception of the world and reality. As Shuell (1990, p. 102) stated: "If a picture is worth 1,000 words, a metaphor is worth 1,000 pictures. For a picture provides only a static image while a metaphor provides a conceptual framework for thinking about something."

The concept of metaphor is derived from the Greek word "metaphora", which means "taking from one place to another place". Hence, metaphor is used to explain a complex phenomenon or event by likening it to another phenomenon or event (Oxford et al., 1998). According to Lakoff and Johnson (1980, p. 5), for example, metaphor involves "understanding and experiencing one kind of thing in terms of another." Thus, a metaphor is formed by referring the X phenomenon as the Y phenomenon openly or implicitly. That is why a metaphor is a powerful mental tool; it "provides a relationship between two dissimilar domains to transfer ideas by using a mental scheme to reflect another" (Saban, 2008a, p. 460).

According to Forceville (2002), in any metaphoric relationship, there are at least three basic elements: (1) the metaphor topic, (2) the metaphor vehicle, and (3) the features which are attributed

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from the source of metaphor to the topic of metaphor. For example: "For me school was like a zoo because the schools I have been so far restricted us all the time as if we were in a zoo. They made us lose our skills and different characteristics. Just like the animals in the cages, we were blocked and could not show our skills in schools. And, when we tried to get out of those cages, we were fiercely warned and stopped." Hence, in any metaphorical relationship, the metaphor vehicle acts as a mental "filter" or a "strainer" to understand or explain the topic of the metaphor in a different perspective (Saban et al., 2006). As Quale (2002, p. 447) also explains: "It is a descriptive analogy, serving to illuminate whatever phenomenon A is being considered, by drawing 'lines of association' to some other phenomenon B that we feel we already understood. The qualification 'already understood' is essential here: the metaphor is asymmetric, in the sense that in the context of explaining A, the referent phenomenon B is assumed to be understood! Thus, some (not all) characteristics of B are used to explain some corresponding characteristics of A."

In recent years, studies of metaphor in both national and international literature have increased considerably. Some of these studies were carried out to explore such phenomena as "teacher" (Guerrero & Villamil, 2002; Saban et al., 2006), "student" (Bozlk, 2002; Saban, 2010a), "school" (Saban, 2008a), "knowledge" (Saban, 2008b), "inspector", (Töremen and Döş, 2009) and "internet" (Saban, 2010b).

**Metaphors about Teacher:** Guerrero and Villamil (2002) asked 22 teachers (with various experiences) to provide the images with which they were most readily associated. The 28 "teacher" metaphors produced by the participants were then grouped into 9 categories: (1) "cooperative leader" (*coach*), (2) "knowledge provider" (*sun*), (3) "challenger" (*lion tamer*), (4) "nurturer" (*gardener*), (5) "innovator" (*explorer*), (6) "tool provider" (*tool carrier*), (7) "artist" (*potter*), (8) "repairer" (*mechanic of the mind*) and (9) "gym instructor" (*aerobics teacher*). Likewise, Saban et al. (2006) examined 1,222 prospective teachers' images of teaching. The 111 "teacher" metaphors produced by the participants were then grouped under 10 categories: (1) "knowledge provider" (*book*), (2) "molder" (*sculptor*), (3) "curer" (*doctor*), (4) "superior authority figure" (*shepherd*), (5) "change agent" (*scriptwriter*), (6) "entertainer" (*comedian*), (7) "counselor" (*companion*), (8) "nurturer" (*gardener*), (9) "facilitator" (*lighthouse*) and (10) "democratic leader" (*conductor*).

**Metaphors about Learner:** Bozlk (2002) examined 49 freshman students' perceptions of self. The 35

"learner" metaphors produced by the participants were then grouped into 4 categories: (1) "animal metaphors" (*donkey*), (2) "object metaphors" (*sponge*), (3) "human metaphors" (*a person with Alzheimer's disease*) and (4) "action metaphors" (*tree climbing*). Similarly, Saban (2010a) investigated 2,847 teacher candidates' conceptions of studentship. The 98 "learner" metaphors produced by the participants were then grouped under 12 categories: (1) "raw material" (*play dough*), (2) "developing organism" (*seedling*), (3) "empty vessel" (*white page*), (4) "significant being" (*mine*), (5) "absolute compliant" (*puppet*), (6) "knowledge recipient" (*antenna*), (7) "knowledge reflector" (*mirror*), (8) "knowledge constructor" (*honeybee*), (9) "defective being" (*street kid*), (10) "social participant" (*ant*), (11) "knowledge carrier" (*porter*) and (12) "social capital" (*natural resource*).

**Metaphors about School:** Saban (2010a) examined a total of 1,709 primary school students', teachers' and teacher trainees' conceptions of schooling. The 74 "school" metaphors produced by the participants were then grouped into 10 categories: (1) "a place of love/solidarity" (*family*), (2) "a place of knowledge/enlightenment" (*internet*), (3) "a shaping/molding place" (*workshop*), (4) "a place of growth/maturation" (*fruit garden*), (5) "a fun/enjoyment place" (*amusement park*), (6) "a place of development" (*stairs*), (7) "a place of hope" (*magic lamp*), (8) "a work center" (*beehive*), (9) "a discipline center" (*prison*) and (10) "a place of guidance" (*compass*).

**Metaphors about Knowledge:** Saban (2008b) examined primary school teachers' (n=105) and their students' (n=1,248) conceptions of knowledge. The 106 "knowledge" metaphors produced by the participants were then grouped into 12 categories: (1) "resource" (*encyclopedia*), (2) "a significant thing" (*mind*), (3) "guide" (*map*), (4) "necessity" (*oxygen*), (5) "a dynamic thing" (*thought*), (6) "a vehicle" (*pen*), (7) "an eternal thing" (*sand*), (8) "a source of joy" (*play*), (9) "protector/savior/healer" (*medicine*), (10) "nutrition for brain" (*apple*), (11) "something to be deposited" (*notebook*) and (12) "a means of power" (*fire*).

**Metaphors about Inspector:** Töremen and Döş (2009) examined 418 elementary teachers' perceptions of inspection. The 116 "inspector" metaphors produced by the participants were then grouped into 4 categories: (1) "metaphors indicating criticism" (*a blinkered person*), (2) "metaphors having both positive and negative meanings" (*mother-in-law*), (3) "metaphors indicating no need for inspec-

tion" (*gramophone record*) and (4) "metaphors having positive meanings" (*friend*).

**Metaphors about Internet:** Saban (2010b) examined 45 senior computer teacher candidates' images of internet. The 25 "internet" metaphors produced by the participants were then grouped into 7 categories: (1) "a system" (*spider web*), (2) "a knowledge vehicle" (*fishing net*), (3) "an addictive entity" (*digital drug*), (4) "a useful and harmful entity" (*nuclear energy*), (5) "an indispensable part of daily life" (*oxygen*), (6) "an attractive location" (*fair*) and (7) "an uncertain entity" (*black hole*).

As it is clear from the above mentioned references, many worldwide studies have been conducted to examine the metaphorical images of educators and students about various educational concepts. However, none of the above-mentioned studies examined computer teacher candidates' "experienced" and "ideal" images of both "school" and "computer teacher" together. Therefore, this study aims to contribute to this gap in the literature.

### Rationale and Purpose

More than twenty two years ago, Clark (1988) pointed out that: "Students begin teacher education programs with their own ideas and beliefs about what it takes to be a successful teacher. These preconceptions are formed from thousands of hours of observation of teachers, good and bad, over the previous fifteen or so years. Undoubtedly, students' conceptions of teaching are incomplete, for they typically see and hear only the performance side of classroom teaching. With this in mind, a thoughtful teacher educator might ask: What are the preconceptions about teaching and learning held by our students?" (p. 7). This study was conducted based on this understanding.

The purpose of this study was to reveal the mental images of senior computer teacher candidates about their experienced or ideal schools and computer teachers through metaphors. Specifically the following questions guided the study:

- (1) What metaphorical images do computer teacher candidates use in order to describe their experienced or ideal schools?
- (2) What conceptual themes (about schools) can be derived from these metaphorical images?
- (3) What metaphorical images do computer teacher candidates use so as to describe their experienced or ideal computer teachers?

(4) What conceptual themes (about computer teachers) can be derived from these metaphorical images?

(5) What are the implications of participants' metaphorical images for teacher training?

## Method

### Research Design

This study used the "phenomenological research" design to examine senior prospective computer teachers' images of experienced or ideal "school" and "computer teacher".

### Participants

Participants were all 45 senior teacher candidates (23 male and 22 female) majoring in the Department of Computer and Instructional Technologies at Selcuk University, Ahmet Kelesoglu Faculty of Education during the 2009-2010 academic year.

### Data Collection

Participants were asked to produce metaphors for their experienced or ideal "school" and "computer teacher" images by using the following prompts: "For me the school was/is like...because..." and "For me the computer teacher was/is like...because..." For this purpose, a one-week time duration was given to the participants. Participants were asked to focus on only one metaphor for each concept (i.e. "school" and "computer teacher") and then to type their thoughts on the computer and later to send them in a file by e-mail to the researcher. These metaphors were used as the main data sources in the study.

### Data Analysis

The metaphors produced by the participants were analyzed through the "content analysis" technique (Yıldırım & Şimşek, 2005) in the following four phases.

**Coding and Elimination Phase:** At this stage, metaphors produced by the participants were simply coded (*animal trainer*, *compass*, etc.) and the metaphors that did not have a logical basis or a rationale were eliminated.

**Sample Metaphorical Images Compilation Phase:**

At this stage, for the coded metaphors related to each concept (i.e. “school” and “computer teacher”), a sample metaphor list was prepared. While forming these lists, the metaphorical images that were developed by only one participant were originally preserved. However, for the metaphorical images produced by more than one participant, the one that was assumed to be the best representative of a particular metaphor was selected as a “sample”. Also, to identify the person who produced a metaphorical image, “male (M)” or “female (F)” remarks were noted down in brackets next to the so-called metaphor expression.

**Category Development Phase:** At this stage, the metaphorical images produced by the participants regarding “school” and “computer teacher” were examined according to their common features based on the “sample metaphor lists” for each concept. For this purpose, each metaphorical image produced by the participant was analyzed regarding (1) the metaphor topic, (2) the metaphor vehicle and (3) the relationships between them. Then, conceptual categories were formed for each concept by analyzing the produced metaphorical images in terms of their perspectives and by relating them with certain themes.

**Establishing Reliability and Validity Stage:** To ensure the validity of the research results, the data analysis process (how the conceptual categories were reached) is described in detail (Yıldırım & Şimşek, 2005) and all the metaphorical images obtained in the study are given in the “findings” section. To ensure the reliability of the research, expert opinion has been asked. For this purpose, two lists for each concept have been given to an instructor who has done and published studies about metaphors: (1) a list of the sample metaphorical images that are indexed in alphabetical order and (2) a list of the names of the conceptual categories with their common characteristics. Then, the expert was asked to match the sample metaphorical images, which were compiled by the researcher, with the conceptual categories which were again developed by the researcher. Later, the expert’s matching was compared with the researcher’s. In the comparisons, “agreement” and “disagreement” scores were calculated and the reliability of the research was checked by using Miles and Huberman’s (1994, p. 64) formula (i.e.,  $\text{Reliability} = \frac{\text{agreement}}{[\text{agreement} + \text{disagreement}]} \times 100$ ). In qualitative studies, when the concordance between the expert’s and the researcher’s evaluation is 70% and above, a de-

sirable level of reliability is ensured. In the present study, an agreement of 91% regarding “school” and an agreement of 90% regarding “computer teacher” have been obtained. However, revisions were made in the placement of the disagreed metaphors in order to reach a reliability of 100%.

## Findings

### The Metaphorical Images Reflecting the Participants’ Experienced and Ideal Schools

Computer teacher candidates produced 33 valid metaphors about “school”. While 16 of these metaphors (48.5%) reflect the participants’ experienced schools, the remaining 17 metaphors (51.5%) represent their ideal schools. According to Table 1, the participants’ metaphorical images representing their experienced schools (n=16) were grouped into 4 conceptual categories. These categories and the metaphors representing them include the following: (1) “a discipline/control center” (*barracks, bottomless well, hippodrome, horror tunnel, prison, ship, stud, traffic, zoo*), (2) “a shaping/molding place” (*aquarium, carpenter’s shop, factory, textbook*), (3) “a work center” (*office*) and (4) “an outdated and dysfunctional place” (*computer without internet, barren land*). Likewise, the participants’ metaphorical images representing their ideal schools (n=17) were grouped into 8 conceptual categories. These categories and the metaphors representing them include the following: (1) “a discipline/control center” (*processor*), (2) “a shaping/molding place” (*bread maker, mill, bakery*), (3) “a work center” (*beehive*), (4) “a place of knowledge/enlightenment” (*fountain, library, spring, shopping center*), (5) “a place of hope” (*wish tree*), (6) “a place of growth/maturation” (*field, garden*), (7) “a place of love/solidarity” (*family, sports club, youth club*) and (8) “a fun/joyful place” (*amusement park, circus*).

**Category 1. School as a Discipline and Control Center:** 12 participants (26.6%) and 10 metaphors (30.3%) represent this category in total. Out of 10, nine metaphors represent the participants’ experienced schools while only one metaphor reflects their ideal schools. The basic features of the metaphors that make up this category are as follows:

- The school is a symbol of power and authority. For example:

For me school was like a *barracks*. Because school was surrounded with walls and over the walls there was a fence surrounding it as in the military zones,

**Table 1.**  
*Metaphorical Images about School*

Category name	Within the category - Participant <i>f</i> (%) - Metaphor <i>f</i> (%)	Metaphorical images reflecting the participants' experienced school	Metaphorical images reflecting the participants' ideal school
A discipline and control center	- 12 (26,6) - 10 (30,3)	<i>Barracks</i> (1M, 1F), <i>Bottomless well</i> (1F), <i>Hippodrome</i> (1M), <i>Horror tunnel</i> (1M), <i>Prison</i> (1M), <i>Ship</i> (1F), <i>Stud</i> (1M), <i>Traffic</i> (1F), <i>Zoo</i> (1F)	<i>Processor</i> (2M)
A shaping and molding place	- 13 (28,8) - 7 (21,2)	<i>Aquarium</i> (1M, 1F), <i>Carpenter's workshop</i> (2M), <i>Factory</i> (2M, 1F), <i>Textbook</i> (1F)	<i>Bread maker</i> (2M), <i>Mill</i> (2M, 1F), <i>Bakery</i> (1M)
A work and study center	- 4 (8,8) - 2 (6)	<i>Office</i> (1M, 2F)	<i>Beehive</i> (1M)
An outdated and dysfunctional place	- 3 (6,6) - 2 (6)	<i>Computer without the internet</i> (1F), <i>Barren land</i> (1M, 1F)	-----
A place of knowledge and enlightenment	- 4 (8,8) - 4 (12,1)	-----	<i>Fountain</i> (1M), <i>Library</i> (1F), <i>Spring</i> (1M), <i>Shopping center</i> (1M)
A place of hope	- 1 (2,2) - 1 (3)	-----	<i>Wish tree</i> (1F)
A place of growth and maturation	- 3 (6,6) - 2 (6)	-----	<i>Field</i> (1M, 1F), <i>Garden</i> (1F)
A place of love and solidarity	- 3 (6,6) - 3 (9)	-----	<i>Family</i> (1M), <i>Sports club</i> (1M), <i>Youth club</i> (1F)
A fun and joyful place	- 2 (4,4) - 2 (6)	-----	<i>Amusement park</i> (1F), <i>Circus</i> (1F)

the only missing thing was the sign of "Forbidden Zone". As in the barracks commanders managing everything, in schools we have the rules of the teachers and directors. (F)

- Students are captive beings. For example:

For me school was like a *zoo* because the schools I have been so far restricted us all the time as if we were in a zoo. They made us lose our skills and different characteristics. Just like the animals in the cages, we were blocked and could not show our skills in schools. And when we tried to get out of those cages we were fiercely warned and stopped. (F)

- When it comes to run school business, there is a certain order. For example:

For me school is like the *processor* in a computer since the processor processes the given data and then sends it to the necessary places. School has also the duty of cultivating the individuals studying there and then sending them to the necessary places. Just as a particular data is processed according to a specific system on the computer, the education provided in schools is also given according to a certain layout. (M)

- There is a certain division of labor among the members of the school. For example:

For me school was like a *ship*, sailing non-stop in the ocean of information. From its captain to its crew, all the staff members of the ship are a part of the trip, everything is planned and it is a huge ship following a certain route. (F)

- It is necessary to obey all the rules of the school. For example:

For me school was like *traffic*, and the students were like the cars in the traffic. Just as the traffic has its rules, the school has also its rules. The teachers at schools are like the traffic police. Whenever a vehicle is speedy, the police warn that driver or stop him/her for speeding. Similarly, when there is a student behaving badly, teachers are there to warn or stop him/her from behaving badly. (F)

- Students who do not obey the school rules are punished. For example:

For me school was like a *prison*. Because most of the times throughout my school life I did not want to go to school. During the times I went, I was feeling as if I did something wrong so I went to school to pay the penalty. We had only one thing to do at school and that was sitting at our desk quietly and listening to the teacher. And while listening, speaking and standing up were forbidden, only punishment was allowed. (M)

- School is a place that should be abandoned as soon as possible. For example:

For me school was like a *bottomless well* because when the time comes, you start school and after that you try to get out of it for years. You never know its end, where you are going and how you will go there. Even though you have friends and teachers around, you are still alone while you are trying to climb up and struggling by yourself. You need to fight all the time not to be a prisoner in this well. (F)

School was like a *horror tunnel* to me because our school life was passing with worries and we could never see the future. Of course, teachers were the figurants of this horror tunnel. Constantly it affected our psychology and disappointed us. (M)

- Learning is to compete with other students. For example:

School was like a *stud* to me because since we started school we have been brought up like race horses. (M)

For me school was like a *hippodrome*. My school life always passed as if I were in a race. Parents whipped us at home while teachers did the same at school. (M)

**Category 2. School as a Shaping and Molding Place:** 13 participants (28.8%) and seven metaphors (21.2%) represent this category in total. Out of nine, four metaphors represent the participants' experienced schools while the remaining three metaphors reflect their ideal schools. The basic features of the metaphors that make up this category are as follows:

- School is an important vehicle for providing cultural unity in the society. For example:

For me school was like an *aquarium*. There were people who were taking care of it. They were taking care of its water, its food and air at certain times but never taking the individual differences into consideration. Everybody was eating food at the same time or was exposed to the same climate. Just like this, at schools students were educated through the same curriculum. (F)

For me school was like a *textbook*. However, textbooks have some limitations because they cannot go beyond the given information. Their information is firm and clear; whatever they teach us, that will be the only thing they ask for as an answer. We have no right to be different. School was like this too, giving students a structured body of knowledge without considering their individual differences. (F)

- School produces students as socially useful products. For example:

We can think of school like a *bread baking machine*. Just as the machine converts the mix into bread, school also takes a student into its system and makes him/her to become a good member of the society. (M)

For me school was like a *carpenter's workshop* because the wood pieces coming there are crafted and in the end there is something that people appreciate. If we consider schools as a carpenter's workshop and teachers as carpenters, we are all crafted in their hands and took the shape that the society asked for. (M)

- School shapes students into a prescribed mold. For example:

School is like a *mill* and different people bring products to that mill. Well-grown products and bad ones, all kinds of products needed to be sorted out. That is to say, different kinds of wheat come to the mill but they all come out as flour. And that's what school is like too. There children are grained like wheat and become ready for life. (F)

School is like a *bakery* to me because students are like dough waiting to be shaped in schools. (B)

For me school is like a *factory* whose raw material is the human being. Just as a raw material first comes to a factory, then is processed and later comes out as a product, schools work like that too. Their functions resemble to the factories in that students first enter schools, then are processed for a while and later come out as products with the same characteristics. (M)

**Category 3. School as a Work and Study Center:** Four participants (8.8%) and two metaphors (6%) represent this category in total. Out of two, one metaphor represents the participants' experienced schools while the other metaphor reflects their ideal schools. The basic features of the metaphors that make up this category are as follows:

- School is a workplace and students participate actively in its activities. For example:

Depending on my student life I see school as an *office*. Everyone has a duty. The teacher teaches and the students listen to him/her; the teacher assigns homework and the students do it. Going to school is an obligation because it is the student's duty. If we do not want to be fired from the occupation of studentship, we should study. And the person who works gets the better salary (scores). (F)



- Students study and learn together at school, not isolated from each other. For example:

For me school should be like a *beehive*. Everyone in the hive should be doing his/her part properly and integrate with the social life. S/he should take some nectar from each flower to produce his/her best honey and try to do his/her best to complete his/her studies in the very best way. (M)

**Category 4. School as an Outdated and Dysfunctional Place:** Three participants (6.6%) and two metaphors (6%) represent this category in total. Both of the metaphors reflect the participants' experienced schools. The basic features of the metaphors that make up this category are as follows:

- School is an institution that needs to be updated. For example:

For me school was like a *computer without the internet* because school was not the place where we could get the necessary information when we needed, or it was not the place that made it easier to learn with various materials and equipment. (F)

- School does not have an appropriate environment for learning. For example:

To me school was like a *barren land*. Just as soil needs a set of criteria to be productive, schools should also have some qualifications. A tree needs enough manure, water and vitamins for growing healthy. (M)

**Category 5. School as a Place of Knowledge and Enlightenment:** Four participants (8.8%) and four metaphors (12.1%) represent this category in total. All the four metaphors reflect the participants' ideal schools. The basic features of the metaphors that make up this category are as follows:

- School is the main source of knowledge. For example:

For me school should be like a *library* because we as students, are in great need of a library to get information. School should be a place where all the information, all the rights and wrongs are shown. (F)

- School's primary mission is to provide information to students. For example:

For me school is like a *shopping center* because people are going there to buy what they need. So school is the same; people go to school to get the information they need. (M)

- School illuminates children's world with the information it provides. For example:

School is like a *source*, the source of information.

Like a person drinking water when s/he is thirsty, school is the place where s/he gets the information s/he needs and stops his/her hunger for knowledge. (M)

- The way school presents information is parallel with what students demand. For example:

For me school is like a *fountain* and knowledge is like water. If you long for knowledge, then you turn on the tap and drink that water. (M)

**Category 6. School as a Place of Hope:** Only one participant (2.2%) and only one metaphor (3%) represent this category. This metaphor reflects the participant's ideal school. Its basic feature that makes up this category is as follows:

- School is the source of hope throughout a person's life. For example:

For me school is like a *wish tree*. Just as the people hanging symbols on a tree reflecting their wishes, school is also like a symbol to me and there I can make my wishes come true. (F)

**Category 7. School as a Place of Growth and Maturation:** Three participants (6.6%) and two metaphors (6%) represent this category in total. Both of the metaphors reflect the participants' ideal schools. The basic features of the metaphors that make up this category are as follows:

- School should meet children's individual interests and needs. For example:

For me school should be like a *flower garden*. It should be a place where there are thousands of different flowers and it should provide each of them the type of climate they need, a kind of place that attracts the student. (F)

- School should have the suitable environment for the students' healthy development. For example:

School is like a *field*, teachers are like farmers and students are like young trees. The farmer provides the convenient conditions for the young trees. The farmer gives his/her young trees adequate water and medication. However, while doing this, s/he is careful about the time and amount, just like a teacher. Children are better in understanding some skills at certain times, and a teacher should know this time period and help the students acquire these skills. Teachers should work like farmers with patience and great effort. (F)

**Category 8. School as a Place of Love and Solidarity:** Three participants (6.6%) and three metaphors (9%) represent this category in total. All the three metaphors reflect the participants' ideal schools.

**Table 2.**  
*Metaphorical Images about Computer Teacher*

Name of Category	Within the category - Participant f (%) - Metaphor f (%)	Metaphorical images reflecting the participants' experienced teacher	Metaphorical images reflecting the participants' ideal teacher
Superior authority figure	- 11 (24,4) - 4 (19)	<i>Animal tamer</i> (2E, 1K), <i>Control panel</i> (4E, 2K), <i>Dragon</i> (1K), <i>Railway</i> (1E)	-----
Shaper and molder	- 10 (22,2) - 4 (19)	<i>Barber</i> (1E), <i>Robot</i> (1E, 5K)	<i>Cook</i> (1K), <i>Potter</i> (2K)
Information provider	- 11 (24,4) - 8 (38)	<i>CD</i> (1E), <i>Presser</i> (1E), <i>Parrot</i> (2K), <i>Old fashioned radio</i> (1E, 1K)	<i>Active internet</i> (1K), <i>Book</i> (1E), <i>Transformer</i> (2E), <i>Web site</i> (1K)
Healer and repairer	- 2 (4,4) - 1 (4,7)	-----	<i>Anti-virus program</i> (1E, 1K)
Guide and pathfinder	- 10 (22,2) - 3 (14,2)	-----	<i>User's guide</i> (2E, 5K), <i>Compass</i> (2K), <i>Road map</i> (1K)
Cooperative and democratic leader	- 1 (2,2) - 1 (4,7)	-----	<i>Conductor</i> (1E)

The basic features of the metaphors that make up this category are as follows:

- School helps students to develop their sense of love and belonging. For example:

For me school should be like a *family*. Students should feel as if they are in their own homes. Teachers should be caring like a parent and consider them as their own children. (M)

- The school allows students to be in cooperation and solidarity. For example:

Ideally, my school is similar to a *youth club*. It is an environment where students can find lots of social activities and meet their interests and skills. So this will make them come to school willingly. It will no more be an obligation. (F)

School is like a *sports club*. Students are athletes and teachers are the trainers who guide them by giving them strategies and supporting them in every way. (M)

**Category 9. School as a Fun and Joyful Place:** Two participants (4.4%) and two metaphors (6%) represent this category in total. Both of the metaphors reflect the participants' ideal schools. The basic features of the metaphors that make up this category are as follows:

- School is the source of joy and happiness. For example:

School is like an *amusement park* where every child would feel happy. It is a place that the child would always like to go and have a lot of fun. Teachers are the employees of the amusement park and the students are the customers of the toys there. (F)

- School is an entertaining environment for students. For example:

School is like a *circus*. Each animal in the circus knows its part. For example, a rabbit cannot roar like a lion but it has its own skills. And the trainer trains it with its capacity. The rabbit is trained to do what it is capable of and enjoys its training. It should also be like this at schools. Students should be educated according to their abilities and should have fun while they are learning. (M)

### The Metaphorical Images Reflecting the Participants' Experienced and Ideal Computer Teachers

Computer teacher candidates produced 21 valid-metaphors about the concept of the "computer teacher". While 10 of these metaphors (47.6%) reflect the participants' experienced computer teachers, the remaining 11 metaphors (52.4%) represent their ideal computer teachers. According to Table 2, the participants' metaphorical images representing their experienced schools were grouped into three conceptual categories. These categories and the metaphors representing them include the following: (1) "super authority figure" (*animal tamer, control panel, dragon, railway*), (2) "shaper and molder" (*barber, robot*) and (3) "information provider" (*CD, old fashioned radio, presser, parrot*). Likewise, the participants' metaphorical images representing their ideal schools were grouped into five conceptual categories. These categories and the metaphors representing them include the following: (1) "shaper and molder" (*cook, potter*), (2) "information provider" (*active internet, book, transformer, web site*), (3) "healer and repairer" (*anti-virus program*), (4) "guide and pathfinder" (*compass, road map, user's guide*) and (5) "cooperative and democratic leader" (*conductor*).



**Category 1. Teacher as a Superior Authority Figure:** 11 participants (24.4%) and four metaphors (19%) represent this category in total. All of the four metaphors reflect the participants' experienced teachers. The basic features of the metaphors that make up this category are as follows:

- The teacher has the authority to control everything happening in the classroom. For example:

My computer teachers were like *dragons*. You know the dragons protecting the castles in the tales; just like them, the computer teachers I had were also protecting their computers from us. They thought of us as their enemies destroying their castles. Because of this they had a bossy attitude towards us. (F)

- The teacher is the only authority in the class to decide what and how to teach. For example:

The teacher I had experience with was like the *control panel*. Control panel controls the computer work just as the teacher controls his/her students at school. (F)

- Students must obey the teacher's rules without questioning his/her authority. For example:

My computer teacher was like a *railway* because students had only one way to reach the knowledge. They had no other alternatives. Whatever the teacher says and tells was always right. (M)

- Students who oppose the teacher's authority are punished. For example:

Computer teachers were like *animal tamers* because they were thinking that we were programmed to be trained. We had to do whatever they told us or whatever they wanted us to do. When we refused, our punishment could be a slap. (F)

**Category 2. Teacher as a Shaper and Molder:** 10 participants (22.2%) and four metaphors (19%) represent this category in total. Out of four, two metaphors represent the participants' experienced teachers while the rest two metaphors reflect their ideal teachers. The basic features of the metaphors that make up this category are as follows:

- A teacher is a master who shapes the student. For example:

For me, the teacher is like a *potter* because s/he, on an old type of turning machine, gives the mud shape with his/her own hands. Just like this, teacher gives shape to his/her students' lives too. (F)

- Student is a raw material that the teacher shapes. For example:

The computer teacher is like a *cook*. A cook gets raw materials such as lentils, chickpeas, vegetables, meat, dairy products and cooks them with various methods and then offers them to people. (F)

- The teacher's most important task is to put students into a predetermined shape. For example:

For me my computer teachers were like pre-programmed *robots*. Just as the robots run on specific programs, teachers did their jobs according to the curriculum designed by the Ministry of National Education. (F)

- There is a standard curriculum that teachers and students must follow. For example:

For me the teacher I had experience with is similar to a *barber*. There is a specific curriculum and students have to learn the subjects in this curriculum. It is like the barber who cuts the hair in the same way all the time. Customer's request is of no importance. There is only one type of hairstyle and each customer has to take accept the same model, s/he has no other choice. (M)

**Category 3. Teacher as an Information Provider:** 11 participants (24.2%) and eight metaphors (38%) represent this category in total. Out of eight, four metaphors represent the participants' experienced teachers while the remaining four metaphors reflect their ideal teachers. The basic features of the metaphors that make up this category are as follows:

- The teacher is the source of information. For example:

For me, the teacher is like a *book*, because we learn through books and get the information we need. And teachers are like books in the eyes of their students. (M)

- The teacher's knowledge is infinite. For example:

For me, a computer teacher should be like an *active internet*. I mean the teacher should be able to answer the students' questions. A computer teacher should be more than just a teacher, for his/her students are used to get the answer immediately through the internet to every question they ask. (F)

For me a computer teacher should be like a *website*. First and foremost, the teacher should be available and update himself/herself in order to provide the most accurate and appropriate information. (F)

- A student is a passive recipient of knowledge. For example:

For me, the teacher was like a *parrot* because she always taught something to memorize. For this reason, knowledge of the student was not permanent and because of the exam system the things they have learned remained only on paper. It did not add anything to their lives. (F)

- Knowledge is an external substance to the students. For example:

Computers teachers are like *transformers* and students are like houses receiving electric from a transformer. When considered this way, the main source of knowledge for all students is the teacher. (M)

- The teacher's most basic task is to transfer information to the students. For example:

The teacher whom I had experience with throughout my life was only like the *CD* which could be played since our computer teacher was just transforming the existing information. Just as the CD that it could only be played but couldn't be written, we also couldn't have any interaction with our teacher. So our teacher just came into the classroom, taught and left, never interacting with us or wondering our ideas about a certain topic. (M)

- Teaching occurs when students receive the information their teachers provide. For example:

The computer teacher I had experience with was like a *presser* because all the time s/he was transferring the stereotyped curriculum information. (M)

- The accuracy of the information presented by the teacher cannot be discussed. For example:

The computer teacher I had experience with was like an *old time fashioned radio*. Because TRT [Turkey's Radio and Television] was the only radio channel that the old time radios had. The information was taken from that single location and the accuracy of it was not criticized at all. (M)

**Category 4. Teacher as a Healer and Repairer:** 2 participants (4.4%) and one metaphor (4.7%) represent this category in total. This metaphor reflects the participants' ideal teacher. The basic feature of this metaphor that makes up this category is as follows:

- The teacher's mission is to diagnose and treat students' attitude and behavior disorders. For example:

For me a computer teacher should be like an *anti-virus program* because generally these programs work like this; removing the virus while receiving the necessary information, protecting it afterwards, keeping away the harmful stuff and updating the program itself all the time. (M)

**Category 5. Teacher as a Guide and Pathfinder:** 10 participants (22.2%) and three metaphors (14.2%) represent this category in total. All of the three metaphors reflect the participants' ideal teachers. The basic features of the metaphors that make up this category are as follows:

- The teacher is a guide or a pathfinder throughout the teaching-learning process. For example:

For me the teacher should be like a *user's manual* which is very useful, understandable and which meets the user's expectations and makes his/her life easier. (F)

- Student is an active member who is trying to make sense of information. For example:

Computer is like a maze and the computer teacher is like a *compass*. If we can't use the computer, we will be lost in so many applications or we will be standing as usual in the same spot. So in a situation like this, the teacher shows us our direction like a compass. (F)

- The most important mission of the teacher is to guide the students and facilitate their learning. For example:

For me a computer teacher is similar to a *road map*. The teacher is a person who helps us to take the shortest and the most convenient way to get to our destination which will help us to achieve our goal with voice and visual directing. (F)

**Category 6. Teacher as a Cooperative and Democratic Leader:** One participant (2.2%) and one metaphor (4.7%) represent this category in total. This metaphor reflects the participants' ideal teacher. The basic feature of this metaphor that makes up this category is as follows:

- The teacher works with students and moves along with them, not independently. For example:

I think the computer teacher should be like a *conductor*. Because each student is a musician and the computers are the instruments that they are trying to play. Teacher shows students how to get the information they need and what to do to get it. S/he teaches them how to hold the instruments and where to stop and start. (M)

## Discussion

The aim of the study was to examine the metaphors which senior computer teacher candidates produced to reflect their experienced and ideal "school" and "computer teacher" images. This research draws attention to several important findings.

First, *participants have used different metaphors to reflect their experienced and ideal schools*. Most of the metaphors reflecting the participants' experiences with their schools (developed by 24 participants) were clustered in the categories of "school as a discipline/control center" (n=10) and "school as a shaping/molding place" (n=8), and the rest under the categories of "school as a work/study center" (n=3) and "school as an outdated/dysfunctional place" (n=3). The metaphorical images reflecting the participants' ideal schools (developed by 21 participants), on the other hand, showed an equal distribution under eight categories. Accordingly, while the participants used only "teaching-centered" metaphorical images to reflect their experienced schools, they used both "teaching-centered" and "learning-centered" metaphors to reflect their ideal schools. According to the participants, the ideal schools could be regarded as "disciplinary", "shaping" and "work" centers, but they could also be the places of "enlightenment", "maturity", "solidarity", "entertaining" and "hope" for the students.

Second, *participants have used different metaphors to reflect their experienced and ideal computer teachers*. Most of the metaphors reflecting the participants' experiences with their computer teachers (developed by 24 participants) were clustered in the category of "teacher as a superior authority figure" (n=11), and the rest under the categories of "teacher as shaper/molder" (n=7) and "teacher as information provider" (n=6). The metaphorical images reflecting the participants' ideal computer teachers (developed by 21 participants), on the other hand, were clustered mostly in the category of "teacher as guide/pathfinder" (n=10) and the rest are clustered into the categories of "teacher as shaper/molder" (n=3), "teacher as information provider" (n=5), "teacher as a healer/repairer" (n=2) and "teacher as democratic leader" (n=1). Accordingly, while the participants used only "teaching-centered" metaphorical images to reflect their experiences with their teachers, they used both "teaching-centered" and "learning-centered" metaphors to reflect their ideal teachers. According to the participants, the ideal teachers could be taken as "molders", "information providers" and "repairers of attitudes and behaviors", but they could also be regarded as "guides" and "democratic leaders".

Thirdly, *in order to understand and to explain school and teacher concepts as a whole, we need more metaphors*. For example, schools could be perceived as "disciplinary/control centers", but they could also be perceived as "places of love/solidarity". Simi-

larly, the teacher might be "a superior authority figure" but at the same time, s/he can be thought as "democratic leader". The basic reason for this variation is that metaphors are selective. They represent a part of the phenomena they describe, but not the whole thing (Weade & Ernst, 1990). This emphasizes the fact that the concepts related with education should be considered and examined multidimensionally. Each theme developed in this study and each metaphor provided by the participants regarding that theme, for instance, emphasized different aspects of "school" and "computer teacher" phenomena.

Fourth, *the results of this study, in addition to having parallels with the other studies in the literature, make new contributions to it by revealing the viewpoints of prospective computer teachers*. For example, while most of the school themes (*a place of knowledge/enlightenment, a discipline/control center, a work/study center, a place of growth/maturation, a fun/joyful place*) are similar to the categories developed by Cerit (2006) and Saban (2008a), the category of "school as an outdated/dysfunctional place" and the two metaphors representing this category (*computer without the internet, barren land*) have been produced only in this study. The metaphor of *school as a barren land* defines experienced schools as "unsuitable environments for learning". Similarly, the metaphor of *school as a computer without the internet* draws attention to the fact that schools should be equipped with the most recent technology.

Finally, *teacher trainees preserve some of their pre-conceptions they had before entering the teacher education program while developing new ones as a result of their student teaching experiences and the coursework in the program*. Levin and He (2008) identified and discussed three types of sources for teacher trainees' personal practical theories: (1) family background and K-12 experiences (35%), (2) teacher education coursework (30%), and (3) observations and student teaching experiences (35%). With regard to the present study, for example, the majority of the participants perceived their experienced schools and computer teachers as "knowledge providers" and "molders". On the other hand, their ideal school and computer teacher images clustered around student-and learning-centered conceptions such as "school as a place of growth/maturation" and "computer teacher as a guide". The question of "Do perceptions of prospective teachers change over the course of teacher training?" has also been examined by Leavy, McSorley, and Bote

(2007), who investigated the changes in 124 Irish and American first-year preservice teachers' beliefs about teaching and learning by asking them to provide metaphors at the beginning and the end of the semester. The results of their study showed that at the end of the semester participants' constructivist metaphors increased while their behaviorist metaphors decreased.

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